

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2003-129399

(43)Date of publication of application : 08.05.2003

(51)Int.Cl.

D21H 27/00

A24D 1/02

D21H 17/67

(21)Application number : 2001-329425

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(22)Date of filing : 26.10.2001

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(54) CIGARETTE PAPER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a cigarette paper having considerably reduced side stream smoke as compared with conventional cigarette paper, without effecting to smoke flavor of the cigarette.

SOLUTION: This cigarette paper includes pulp and precipitated calcium carbonate as main ingredients, and goethite.

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CLAIMS

[Claim(s)]

[Claim 1]Rolled letter paper for tobacco using pulp and precipitated calcium carbonate as the main ingredients, and containing goethite further.

[Claim 2]Rolled letter paper for tobacco containing goethite of 0.1 to 20 mass part to bone-dry pulp 100 mass part in rolled letter paper for tobacco which uses pulp and precipitated calcium carbonate as the main ingredients.

[Claim 3]The rolled letter paper for tobacco according to claim 1 or 2 which furthermore contains an alkali-metal-salt combustion improver of 0.5 to 5.0 mass part to bone-dry pulp 100 mass part.

[Claim 4]Rolled letter paper for tobacco given in any 1 paragraph of claims 1-3 whose permeability is beyond 30 cholest units.

[Claim 5]Rolled letter paper for tobacco given in any 1 paragraph of claims 1-4 more than whose 50 mass % of said pulp are flax pulp.

[Claim 6]Rolled letter paper for tobacco given in any 1 paragraph of claims 1-5 by which precipitated calcium carbonate of 10 - 40 mass % is contained in rolled letter paper for tobacco.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the rolled letter paper for tobacco for manufacturing tobacco with few sidestream smokes.

[0002]

[Description of the Prior Art]If the mainstream smoke attracted by a smoker through a tobacco main part and fire leave just on the occasion of smoking of tobacco, the sidestream smoke which rises from this tip will occur, but a sidestream smoke also causes a health issue at the same time it gives the surrounding nonsmoker displeasure. For this reason, it ranks with not affecting smoking taste, having the moderate rate of combustion, that the leaf of a cigarette is transparent and is not seen (opacity), self-winding fitness (tensile strength), etc. as the required characteristic of the rolled letter paper for tobacco, and it is becoming still more important to decrease a sidestream smoke in recent years.

[0003]About decreasing the sidestream smoke of tobacco, conventionally Then, JP,48-9000,A, JP,48-61699,A, JP,58-183082,A, JP,63-87967,A, JP,2-99699,A, JP,2-501075,A, JP,3-33299,A, JP,3-43068,A, JP,3-151868,A, Many methods are proposed by gazettes, such as JP,3-180597,A, JP,3-500553,A, JP,5-236929,A, JP,5-324397,A, JP,10-81,A, and JP,11-124800,A.

[0004]For example, to JP,5-236929,A, in order to decrease a sidestream smoke, making the rolled letter paper for tobacco contain carbon is indicated.

In JP,10-81,A, in order to decrease a sidestream smoke, the rolled letter paper for tobacco using pulp of the high degree of beating is indicated.

To JP,11-124800,A, in order to mask the bad smell of a sidestream smoke, making lactone contain is indicated. although that which surely is effective is accepted, a manufacturing method is difficult, these proposals have many problems, impairing the smoking taste of

tobacco or becoming a cost hike, and it is actual that the yet sufficiently satisfying rolled letter paper for tobacco is not found out.

[0005]By using alkali metal salt especially potassium citrate, and sodium acid citrate for the rolled letter paper for tobacco as a combustion promotion additive, it is known that a sidestream smoke will decrease and, generally it is used (U.S. Pat. No. 4321377 specification). However, although it is possible for the rate of combustion to become quick and to decrease a sidestream smoke to some extent as a result by adding alkali metal salt, there is evil in which regulation is difficult, the rate of combustion will fall rather if alkali metal salt is added superfluously, or smoking taste falls. Therefore, it is difficult to decrease a sidestream smoke, without changing smoking taste only by addition of alkali metal salt.

[0006]

[Problem(s) to be Solved by the Invention]An object of this invention is to provide the rolled letter paper for tobacco which decreased in number the sidestream smoke remarkably as compared with the conventional rolled letter paper for tobacco, not affecting the smoking taste of tobacco but holding the moderate rate of combustion.

[0007]

[Means for Solving the Problem]A result of this invention persons having investigated a new combustion promotion additive, and having considered application to rolled letter paper for tobacco, Without changing an effect which cannot be attained if the above-mentioned alkali metal salt was only used as a combustion promotion additive, i.e., smoking taste, a substance to which a sidestream smoke is reduced is found out and it came to complete this invention.

[0008]This invention for solving the above-mentioned technical problem includes the following inventions.

(1) Rolled letter paper for tobacco using pulp and precipitated calcium carbonate as the main ingredients, and containing goethite further.

(2) Rolled letter paper for tobacco which contains goethite ($\alpha\text{-FeOOH}$) of 0.1 to 20 mass part to bone-dry pulp 100 mass part in rolled letter paper for tobacco which uses pulp and precipitated calcium carbonate as the main ingredients.

[0009](3) (1) which contains an alkali-metal-salt combustion improver of 0.5 - 5.0 mass part to bone-dry pulp 100 mass part further, or rolled letter paper for tobacco given in (2) paragraphs.

(4) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (3) paragraph whose permeability is beyond 30 cholest units.

[0010](5) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (4) paragraph more than whose 50 mass % of said pulp is flax pulp.

(6) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (5) paragraph by which precipitated calcium carbonate of 10 - 40 mass % is contained in rolled letter paper for tobacco.

[0011] This invention includes the following inventions further.

(7) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (6) paragraph whose mean particle diameter of said goethite is 0.01-2.0 micrometers.

(8) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (7) paragraph whose BET specific surface area of said goethite is $0.2-200\text{m}^2/\text{g}$.

(9) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (8) paragraph which freeness of pulp is the freeness according to a Canada standard method (however, concentration of pulp suspension is made into 0.1%.) by the wire method mentioned later, and is 100-200 ml.

[0012]

[Embodiment of the Invention] Usually, the rolled letter paper for tobacco used pulp and precipitated calcium carbonate as the main ingredients, and the combustion improver is contained so that there may be no going out, also when did not smoke tobacco and it is neglected. A sidestream smoke is smoke when not smoking tobacco, and when combustion temperature is low temperature, it is easy to generate it. Then, since oxygen will be supplied, the rate of combustion will increase and it will burn at an elevated temperature if tobacco is attracted, a sidestream smoke is hardly generated. Therefore, a sidestream smoke decreases by raising the rate of combustion.

[0013] The rolled letter paper for tobacco of this invention is the rolled letter paper for tobacco which reduced the sidestream smoke remarkably as compared with the conventional rolled letter paper for tobacco not affecting the smoking taste of tobacco but holding the moderate rate of combustion by making goethite contain. Goethite has the feature in not having an adverse effect on the smoking taste of tobacco at all, and does not affect the smoking taste of tobacco with the character, but makes possible the target of this invention of decreasing a sidestream smoke remarkably.

[0014] The goethite used by this invention is a particle with a mean particle diameter of 0.01-2.0 micrometers, and many long and slender detailed fiber particles arrange it regularly, and it forms spindle-shaped particles. Especially, a 0.1-1.0-micrometer particle is preferred from points, such as flammability, handling fitness, and a yield. The value of the desirable BET specific surface area of goethite is $0.2-200\text{m}^2/\text{g}$, and its $1-150\text{m}^2/\text{g}$ is more preferred.

[0015] The goethite used by this invention has a large BET specific surface area as mentioned above, It seems that it has a high catalysis which promotes combustion of combustibles, and it seems that the effect that this catalysis increases the combustion enhancement effect which cannot be attained in the alkali metal salt conventionally used as a combustion improver, and reduces a sidestream smoke is brought about.

[0016] The quantity of the goethite used for the rolled letter paper for tobacco of this invention is one to 10 mass part preferably 0.1 to 20 mass part to bone-dry pulp 100 mass part. Unless

content is less than 0.1 mass parts, a combustion facilitatory effect is not acquired, and when content exceeds 20 mass parts, coloring is conspicuous and there is a problem of burning too much.

[0017]In addition to goethite, the further reduction of a sidestream smoke of the rolled letter paper for tobacco of this invention is attained [that it cannot attain when goethite or an alkali-metal-salt combustion improver is used independently, respectively, and] by using together a publicly known alkali-metal-salt combustion improver conventionally. Although alkali metal salt, such as carbonic acid, formic acid, acetic acid, propionic acid, oxalic acid, malonic acid, succinic acid, glutaric acid, malic acid, lactic acid, citrate, and tartaric acid, is mentioned as an alkali-metal-salt combustion improver, When especially potassium citrate and sodium acid citrate are used as a combustion promotion additive, reduction in a sidestream smoke is remarkable and preferred.

[0018]The quantity of an alkali-metal-salt combustion improver is 1.0 to 3.0 mass part preferably 0.5 to 5.0 mass part to bone-dry pulp 100 mass part. If the quantity of an alkali-metal-salt combustion improver is less than a minimum, a combustion facilitatory effect is insufficient, and if a maximum is exceeded, a combustion facilitatory effect will decrease conversely. Internal [of the addition to the rolled letter paper for tobacco of goethite and an alkali-metal-salt combustion improver] may be carried out at the time of paper manufacture, and externally adding may be carried out by size press etc. after paper making.

[0019]Although the pulp in particular used for the rolled letter paper for tobacco of this invention is not limited, it is usable in seed fiber pulp, such as leaf fiber pulp, such as herb bast fiber pulp, such as broad-leaved tree wood pulp, needle-leaf tree wood pulp, a hemp, *****, a jute, and a kenaf, hemp of Manila, and a henequen, cotton, and linters, etc. However, flax pulp is preferred in respect of it being easy to secure permeability and tensile strength being made highly, and smoking taste being good and there being etc., and it is preferred that more than 50 mass % of the pulp used is flax pulp.

[0020]When the freeness of pulp at the time of paper making decreases a sidestream smoke, it is important. The freeness of the pulp used for the rolled letter paper for tobacco of this invention is the freeness according to the Canada standard method (however, concentration of pulp suspension is made into 0.1%.) by the wire method mentioned later, and its 100-200 ml is preferred. If it is in the tendency for tensile strength to be insufficient and for workability to worsen if freeness is less than a minimum and a maximum is exceeded, required permeability is not obtained and the reduction effect of a sidestream smoke is not enough.

[0021]Although there are precipitated calcium carbonate, titanium oxide, clay, kaolin, silica, zeolite, etc. which are usually well used as a loading material which are the other main ingredients, Although it takes out the opacity of paper, and it not only can maintain permeability, but the point of smoking taste to precipitated calcium carbonate is preferred and

the addition can be chosen arbitrarily, it is preferred 10-40 mass % That precipitated calcium carbonate is contained in the rolled letter paper for tobacco. If the quantity of precipitated calcium carbonate is less than 10 mass %, the permeability of the rolled letter paper for tobacco is low, and if 40 mass % is exceeded, it will become insufficient [powder omission and tensile strength].

[0022]The breathability of the rolled letter paper for tobacco affects the rate of combustion greatly. In the rolled letter paper for tobacco of this invention, it is preferred that the permeability of the completed rolled letter paper is beyond 30 cholest units, it is a 30 - 100 cholest unit more preferably, and is 30 - 80 cholest unit still more preferably. For a smoker, if permeability is not filled per 30 cholest, since flammability is inferior, the problem that the amount of nicotine tar increases not only arises, but it will stand and disappear or a sidestream smoke will increase due to the fall of the rate of combustion resulting from the shortage of breathability.

[0023]

[Example]Although an example explains this invention concretely below, this invention is not limited to these examples. In the following examples and comparative examples, a measuring method and the valuation method are as follows.

[0024]<Measurement of freeness> flax pulp and rolled-letter-paper timber material pulp have remarkably bad filterability as compared with usual paper pulp, and measurement of the freeness according to a Canada standard method is difficult. Then, it lowered to 0.1% from 0.3% to which the concentration of pulp slurry is specified by a Canada standard method, and the plate in which the small hole further attached to the ***** lower part of a measuring instrument opened was changed into the mesh plate of 80 meshes, and was measured, and this value was made into CSF freeness. This measuring method is known for the paper-making industry as a 1g wire method.

[0025]Using the unit of the extract sheet created by the example and comparative example below <creation of a hand-rolled cigarette> and commercial tobacco (trade name; mild seven), the with 60 mm in length, the circumference of 25 mm, and a volume mass of 0.80**0.02 g hand-rolled cigarette was created, and the following examinations were presented.

[0026]It was shown in the <physical properties of used goethite> table 1.

[0027]

[Table 1]

物性	値
成分	$\alpha\text{-FeOOH}$
結晶構造	スピンドル
BET比表面積	86.3 m ² /g
水分	0.98%
pH	8.1
粒子径	0.25 μm

[0028]< permeability; it measured using product permeability meter ppmmade by cholest > U.S. FILTRONA 100.

Cholest unit; the air passing flow rate for 1 minute is expressed with cm^3 per 1-cm^2 under a $100\text{mmH}_2\text{O}$ condition.

[0029]Lit at the tip of the <amount of sidestream smokes> hand-rolled cigarette, and stand tobacco horizontally, it was made to combust spontaneously, and the quantity of the sidestream smoke which rises was observed visually. a judging standard -- O: -- little **: -- quite large x: -- many was presupposed.

[0030]In the state of spontaneous combustion of the <rate-of-combustion> preceding clause, time for tobacco to burn 1 cm was measured in the second. The desirable rate of combustion is 100 to 200 seconds/cm.

[0031]Beating of the bleached [example 1] flax pulp was carried out to 150 ml of CSF freeness, goethite (made by Toda Kogyo Corp.) and precipitated calcium carbonate (PCX850 Shiraishi industrial company make) were added, the sheet of U.S. tsubo 30 g/m^2 was created with the TAPPI normalized form extract machine, and each examination was presented. The loadings to bone-dry pulp 100 mass part of goethite were made into 1.0 mass parts. The compounding rate in the rolled letter paper for tobacco of calcium carbonate was made into 30 mass parts.

[0032]Except having made the loadings of example 2 goethite into 2.0 mass parts, the extract sheet was created like Example 1 and each examination was presented.

[0033]0.5 mass parts of potassium citrate were further applied to the sheet of example 3 Example 1 to sheet bone-dry pulp 100 mass part, the extract sheet of Example 3 was created, and each examination was presented.

[0034]Except the CSF freeness of example 4 flax pulp having been 200 ml, the extract sheet was created like Example 1 and each examination was presented.

[0035]Except having made the loadings of example 5 goethite into 0.01 mass parts, the extract sheet was created like Example 1 and each examination was presented.

[0036]Except having made the compounding rate of example 6 goethite into 25 mass parts, the extract sheet was created like Example 1 and each examination was presented. This sample had coloring.

[0037]Except not making comparative example 1 goethite contain, the extract sheet was created like Example 1 and it was considered as the sheet for comparison. Fire stands, and cannot go out and smoke.

[0038]1.0 mass parts of potassium citrate were applied to the sheet which does not contain the goethite of the comparative example 2 comparative example 1 to sheet bone-dry pulp 100 mass part, and it was considered as the sheet for comparison. Since the rate of combustion is

slow, there are many sidestream smokes.

[0039]The test result of each of said example is shown in Table 2.

[Table 2]

区分	燃焼促進剤添加量	CSF ろ水度 (ml)	通気度 (CU)	副流煙量	燃焼速度 (秒/cm)
実施例 1	ゲータイト 1.0質量部	150	44	○	165
実施例 2	ゲータイト 2.0質量部	150	42	○	130
実施例 3	ゲータイト 1.0質量部 クエン酸カリウム 0.5質量部	150	44	○	140
実施例 4	ゲータイト 1.0質量部	200	30	○	150
実施例 5	ゲータイト 0.01質量部	150	44	△	200
実施例 6	ゲータイト 25質量部	150	46	○	90
比較例 1	無し	150	45	×	立ち消える
比較例 2	ゲータイト 無し クエン酸カリウム 1.0質量部	150	44	△	210

[0040]

[Effect of the Invention]In the example of this invention, compared with the comparative example, the rate of combustion required as rolled letter paper for tobacco was held, and it became possible to reduce the amount of sidestream smokes so that clearly from Table 2. The rolled letter paper for tobacco of this invention is outstanding rolled letter paper for tobacco which does not affect the smoking taste of tobacco and does not raise a manufacturing cost, either.

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TECHNICAL FIELD

[Field of the Invention]This invention relates to the rolled letter paper for tobacco for manufacturing tobacco with few sidestream smokes.

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PRIOR ART

[Description of the Prior Art]If the mainstream smoke attracted by a smoker through a tobacco main part and fire leave just on the occasion of smoking of tobacco, the sidestream smoke which rises from this tip will occur, but a sidestream smoke also causes a health issue at the same time it gives the surrounding nonsmoker displeasure. For this reason, it ranks with not affecting smoking taste, having the moderate rate of combustion, that the leaf of a cigarette is transparent and is not seen (opacity), self-winding fitness (tensile strength), etc. as the required characteristic of the rolled letter paper for tobacco, and it is becoming still more important to decrease a sidestream smoke in recent years.

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[0004]For example, to JP,5-236929,A, in order to decrease a sidestream smoke, making the rolled letter paper for tobacco contain carbon is indicated.

In JP,10-81,A, in order to decrease a sidestream smoke, the rolled letter paper for tobacco using pulp of the high degree of beating is indicated.

To JP,11-124800,A, in order to mask the bad smell of a sidestream smoke, making lactone contain is indicated. although that which surely is effective is accepted, a manufacturing method is difficult, these proposals have many problems, impairing the smoking taste of tobacco or becoming a cost hike, and it is actual that the yet sufficiently satisfying rolled letter paper for tobacco is not found out.

[0005]By using alkali metal salt especially potassium citrate, and sodium acid citrate for the rolled letter paper for tobacco as a combustion promotion additive, it is known that a sidestream smoke will decrease and, generally it is used (U.S. Pat. No. 4321377 specification).

However, although it is possible for the rate of combustion to become quick and to decrease a sidestream smoke to some extent as a result by adding alkali metal salt, there is evil in which regulation is difficult, the rate of combustion will fall rather if alkali metal salt is added superfluously, or smoking taste falls. Therefore, it is difficult to decrease a sidestream smoke, without changing smoking taste only by addition of alkali metal salt.

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EFFECT OF THE INVENTION

[Effect of the Invention]In the example of this invention, compared with the comparative example, the rate of combustion required as rolled letter paper for tobacco was held, and it became possible to reduce the amount of sidestream smokes so that clearly from Table 2. The rolled letter paper for tobacco of this invention is outstanding rolled letter paper for tobacco which does not affect the smoking taste of tobacco and does not raise a manufacturing cost, either.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]An object of this invention is to provide the rolled letter paper for tobacco which decreased in number the sidestream smoke remarkably as compared with the conventional rolled letter paper for tobacco, not affecting the smoking taste of tobacco but holding the moderate rate of combustion.

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MEANS

[Means for Solving the Problem]A result of this invention persons having investigated a new combustion promotion additive, and having considered application to rolled letter paper for tobacco, Without changing an effect which cannot be attained if the above-mentioned alkali metal salt was only used as a combustion promotion additive, i.e., smoking taste, a substance to which a sidestream smoke is reduced is found out and it came to complete this invention.

[0008]This invention for solving the above-mentioned technical problem includes the following inventions.

(1) Rolled letter paper for tobacco using pulp and precipitated calcium carbonate as the main ingredients, and containing goethite further.

(2) Rolled letter paper for tobacco which contains goethite (α -FeOOH) of 0.1 to 20 mass part to bone-dry pulp 100 mass part in rolled letter paper for tobacco which uses pulp and precipitated calcium carbonate as the main ingredients.

[0009](3) (1) which contains an alkali-metal-salt combustion improver of 0.5 - 5.0 mass part to bone-dry pulp 100 mass part further, or rolled letter paper for tobacco given in (2) paragraphs.

(4) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (3) paragraph whose permeability is beyond 30 cholest units.

[0010](5) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (4) paragraph more than whose 50 mass % of said pulp is flax pulp.

(6) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (5) paragraph by which precipitated calcium carbonate of 10 - 40 mass % is contained in rolled letter paper for tobacco.

[0011]This invention includes the following inventions further.

(7) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (6) paragraph whose mean particle diameter of said goethite is 0.01-2.0 micrometers.

(8) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (7) paragraph

whose BET specific surface area of said goethite is $0.2\text{-}200\text{m}^2/\text{g}$.

(9) Rolled letter paper for tobacco given in any 1 paragraph of a (1) paragraph - (8) paragraph which freeness of pulp is the freeness according to a Canada standard method (however, concentration of pulp suspension is made into 0.1%.) by the wire method mentioned later, and is 100-200 ml.

[0012]

[Embodiment of the Invention] Usually, the rolled letter paper for tobacco used pulp and precipitated calcium carbonate as the main ingredients, and the combustion improver is contained so that there may be no going out, also when did not smoke tobacco and it is neglected. A sidestream smoke is smoke when not smoking tobacco, and when combustion temperature is low temperature, it is easy to generate it. Then, since oxygen will be supplied, the rate of combustion will increase and it will burn at an elevated temperature if tobacco is attracted, a sidestream smoke is hardly generated. Therefore, a sidestream smoke decreases by raising the rate of combustion.

[0013] The rolled letter paper for tobacco of this invention is the rolled letter paper for tobacco which reduced the sidestream smoke remarkably as compared with the conventional rolled letter paper for tobacco not affecting the smoking taste of tobacco but holding the moderate rate of combustion by making goethite contain. Goethite has the feature in not having an adverse effect on the smoking taste of tobacco at all, and does not affect the smoking taste of tobacco with the character, but makes possible the target of this invention of decreasing a sidestream smoke remarkably.

[0014] The goethite used by this invention is a particle with a mean particle diameter of 0.01-2.0 micrometers, and many long and slender detailed fiber particles arrange it regularly, and it forms spindle-shaped particles. Especially, a 0.1-1.0-micrometer particle is preferred from points, such as flammability, handling fitness, and a yield. The value of the desirable BET specific surface area of goethite is $0.2\text{-}200\text{m}^2/\text{g}$, and its $1\text{-}150\text{-m}^2/\text{g}$ is more preferred.

[0015] The goethite used by this invention has a large BET specific surface area as mentioned above, It seems that it has a high catalysis which promotes combustion of combustibles, and it seems that the effect that this catalysis increases the combustion enhancement effect which cannot be attained in the alkali metal salt conventionally used as a combustion improver, and reduces a sidestream smoke is brought about.

[0016] The quantity of the goethite used for the rolled letter paper for tobacco of this invention is one to 10 mass part preferably 0.1 to 20 mass part to bone-dry pulp 100 mass part. Unless content is less than 0.1 mass parts, a combustion facilitatory effect is not acquired, and when content exceeds 20 mass parts, coloring is conspicuous and there is a problem of burning too much.

[0017] In addition to goethite, the further reduction of a sidestream smoke of the rolled letter

paper for tobacco of this invention is attained [that it cannot attain when goethite or an alkali-metal-salt combustion improver is used independently, respectively, and] by using together a publicly known alkali-metal-salt combustion improver conventionally. Although alkali metal salt, such as carbonic acid, formic acid, acetic acid, propionic acid, oxalic acid, malonic acid, succinic acid, glutaric acid, malic acid, lactic acid, citrate, and tartaric acid, is mentioned as an alkali-metal-salt combustion improver, When especially potassium citrate and sodium acid citrate are used as a combustion promotion additive, reduction in a sidestream smoke is remarkable and preferred.

[0018]The quantity of an alkali-metal-salt combustion improver is 1.0 to 3.0 mass part preferably 0.5 to 5.0 mass part to bone-dry pulp 100 mass part. If the quantity of an alkali-metal-salt combustion improver is less than a minimum, a combustion facilitatory effect is insufficient, and if a maximum is exceeded, a combustion facilitatory effect will decrease conversely. Internal [of the addition to the rolled letter paper for tobacco of goethite and an alkali-metal-salt combustion improver] may be carried out at the time of paper manufacture, and externally adding may be carried out by size press etc. after paper making.

[0019]Although the pulp in particular used for the rolled letter paper for tobacco of this invention is not limited, it is usable in seed fiber pulp, such as leaf fiber pulp, such as herb bast fiber pulp, such as broad-leaved tree wood pulp, needle-leaf tree wood pulp, a hemp, *****, a jute, and a kenaf, hemp of Manila, and a henequen, cotton, and linters, etc. However, flax pulp is preferred in respect of it being easy to secure permeability and tensile strength being made highly, and smoking taste being good and there being etc., and it is preferred that more than 50 mass % of the pulp used is flax pulp.

[0020]When the freeness of pulp at the time of paper making decreases a sidestream smoke, it is important. The freeness of the pulp used for the rolled letter paper for tobacco of this invention is the freeness according to the Canada standard method (however, concentration of pulp suspension is made into 0.1%.) by the wire method mentioned later, and its 100-200 ml is preferred. If it is in the tendency for tensile strength to be insufficient and for workability to worsen if freeness is less than a minimum and a maximum is exceeded, required permeability is not obtained and the reduction effect of a sidestream smoke is not enough.

[0021]Although there are precipitated calcium carbonate, titanium oxide, clay, kaolin, silica, zeolite, etc. which are usually well used as a loading material which are the other main ingredients, Although it takes out the opacity of paper, and it not only can maintain permeability, but the point of smoking taste to precipitated calcium carbonate is preferred and the addition can be chosen arbitrarily, it is preferred 10-40 mass % That precipitated calcium carbonate is contained in the rolled letter paper for tobacco. If the quantity of precipitated calcium carbonate is less than 10 mass %, the permeability of the rolled letter paper for tobacco is low, and if 40 mass % is exceeded, it will become insufficient [powder omission and

tensile strength].

[0022]The breathability of the rolled letter paper for tobacco affects the rate of combustion greatly. In the rolled letter paper for tobacco of this invention, it is preferred that the permeability of the completed rolled letter paper is beyond 30 cholest units, it is a 30 - 100 cholest unit more preferably, and is 30 - 80 cholest unit still more preferably. For a smoker, if permeability is not filled per 30 cholest, since flammability is inferior, the problem that the amount of nicotine tar increases not only arises, but it will stand and disappear or a sidestream smoke will increase due to the fall of the rate of combustion resulting from the shortage of breathability.

[Translation done.]

* NOTICES *

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

EXAMPLE

[Example]Although an example explains this invention concretely below, this invention is not limited to these examples. In the following examples and comparative examples, a measuring method and the valuation method are as follows.

[0024]<Measurement of freeness> flax pulp and rolled-letter-paper timber material pulp have remarkably bad filterability as compared with usual paper pulp, and measurement of the freeness according to a Canada standard method is difficult. Then, it lowered to 0.1% from 0.3% to which the concentration of pulp slurry is specified by a Canada standard method, and the plate in which the small hole further attached to the ***** lower part of a measuring instrument opened was changed into the mesh plate of 80 meshes, and was measured, and this value was made into CSF freeness. This measuring method is known for the paper-making industry as a 1g wire method.

[0025]Using the unit of the extract sheet created by the example and comparative example below <creation of a hand-rolled cigarette> and commercial tobacco (trade name; mild seven), the with 60 mm in length, the circumference of 25 mm, and a volume mass of 0.80**0.02 g hand-rolled cigarette was created, and the following examinations were presented.

[0026]It was shown in the <physical properties of used goethite> table 1.

[0027]

[Table 1]

物性	値
成分	$\alpha\text{-FeOOH}$
結晶構造	スピンドル
BET比表面積	86.3 m ² /g
水分	0.98%
pH	8.1
粒子径	0.25 μm

[0028]< permeability; it measured using product permeability meter ppmmade by cholest > U.S. FILTRONA 100.

Cholest unit; the air passing flow rate for 1 minute is expressed with cm^3 per 1-cm^2 under a $100\text{mmH}_2\text{O}$ condition.

[0029]Lit at the tip of the <amount of sidestream smokes> hand-rolled cigarette, and stand tobacco horizontally, it was made to combust spontaneously, and the quantity of the sidestream smoke which rises was observed visually. a judging standard -- O: -- little **: -- quite large x: -- many was presupposed.

[0030]In the state of spontaneous combustion of the <rate-of-combustion> preceding clause, time for tobacco to burn 1 cm was measured in the second. The desirable rate of combustion is 100 to 200 seconds/cm.

[0031]Beating of the bleached [example 1] flax pulp was carried out to 150 ml of CSF freeness, goethite (made by Toda Kogyo Corp.) and precipitated calcium carbonate (PCX850 Shiraishi industrial company make) were added, the sheet of U.S. tsubo 30 g/m^2 was created with the TAPPI normalized form extract machine, and each examination was presented. The loadings to bone-dry pulp 100 mass part of goethite were made into 1.0 mass parts. The compounding rate in the rolled letter paper for tobacco of calcium carbonate was made into 30 mass parts.

[0032]Except having made the loadings of example 2 goethite into 2.0 mass parts, the extract sheet was created like Example 1 and each examination was presented.

[0033]0.5 mass parts of potassium citrate were further applied to the sheet of example 3 Example 1 to sheet bone-dry pulp 100 mass part, the extract sheet of Example 3 was created, and each examination was presented.

[0034]Except the CSF freeness of example 4 flax pulp having been 200 ml, the extract sheet was created like Example 1 and each examination was presented.

[0035]Except having made the loadings of example 5 goethite into 0.01 mass parts, the extract sheet was created like Example 1 and each examination was presented.

[0036]Except having made the compounding rate of example 6 goethite into 25 mass parts, the extract sheet was created like Example 1 and each examination was presented. This sample had coloring.

[0037]Except not making comparative example 1 goethite contain, the extract sheet was created like Example 1 and it was considered as the sheet for comparison. Fire stands, and cannot go out and smoke.

[0038]1.0 mass parts of potassium citrate were applied to the sheet which does not contain the goethite of the comparative example 2 comparative example 1 to sheet bone-dry pulp 100 mass part, and it was considered as the sheet for comparison. Since the rate of combustion is slow, there are many sidestream smokes.

[0039]The test result of each of said example is shown in Table 2.

[Table 2]

区分	燃焼促進剤添加量	CSF ろ水度 (ml)	通気度 (CU)	副流煙量	燃焼速度 (秒/cm)
実施例 1	ゲータイト 1.0 質量部	150	44	○	165
実施例 2	ゲータイト 2.0 質量部	150	42	○	130
実施例 3	ゲータイト 1.0 質量部 クエン酸カリウム 0.5 質量部	150	44	○	140
実施例 4	ゲータイト 1.0 質量部	200	30	○	150
実施例 5	ゲータイト 0.01 質量部	150	44	△	200
実施例 6	ゲータイト 25 質量部	150	46	○	90
比較例 1	無し	150	45	×	立ち消える
比較例 2	ゲータイト 無し クエン酸カリウム 1.0 質量部	150	44	△	210

[Translation done.]